LEGAL ~~BASIS FOR~~FRAMEWORK~~FRAMEWORK~~: WATER QUALITY TRADING ~~UNDER FEDERAL LAW~~

In 1972, Congress amended the Clean Water Act ("CWA") and declared a national goal "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters[,]" with the elimination of pollutant discharges to occur by 1985.[1] To attain these goals, the CWA addresses point source and nonpoint source pollution through ~~effluent limitations~~control measures, and requires states to establish water quality standards. Though significant recovery has occurred, nearly thirty years have passed since the 1985 "pollution elimination" deadline and a considerable percentage of the nation's waterways remain impaired.[2]

In 2003, the United States Environmental Protection Agency ("EPA") published a final Water Quality Trading Policy describing how ~~to enable~~ point and nonpoint sources ~~to~~ can participate in voluntary, market-based approaches to meeting water quality compliance obligations at a reduced cost.[3] The Trading Policy reinforces point and nonpoint source obligations to comply with CWA provisions, and provides a framework for ~~approved~~ pollutant credit trading consistent with the anti-backsliding policy, compliance and enforcement provisions, and public notice and comment, as required by law. Though the Trading Policy discusses several contexts in which trading may occur—to maintain high water quality, pre-total maximum daily load ("TMDL") trading in impaired waters, TMDL trading, technology-based trading, pre-treatment trading, and intra-plant trading—to date, trading has most commonly been used by point sources with National Pollutant Discharge Elimination System ("NPDES") permit obligations. Where TMDLs exist for impaired waters, trading has typically been incorporated into NPDES permits.

I. General CWA Framework

The CWA pursues two tracks for maintaining and restoring the nation's waterbodies: 1) controlling point sources ~~discharges~~ through technology-based "~~effluent~~ limitations,"[4] and 2) ~~setting~~ establishing ambient water quality standards ~~to protect designated uses~~that are the basis for additional water quality-based controls that may be imposed when technologically-based controls are inadequate to assure standard attainment and maintenance.[5] The CWA makes the discharge of a pollutant into a waterbody illegal unless done so in compliance with one of the

[1] 33 U.S.C. § 1251(a).
[2] EPA, Water Trading Policy, 68 Fed. Reg. 1608, 1609 (Jan. 13, 2003) (hereafter "Trading Policy").
[3] Trading Policy, 68 Fed. Reg. at 1610.
[4] Effluent limitations include "*any restriction* established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters …." 33 U.S.C. § 1362(11) (emphasis added). Effluent limitations therefore, need not be numeric. Moreover, they can include schedules of compliance. *See id.* A schedules of compliance is a "schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation ..." *Id.* § 1362(17).
[5] 33 U.S.C. §§ 1312, 1313.

section 302, 306, 307, 318, 402 or 404 programs.[6] The CWA regulates pollutant discharges from "point sources"[7] and "nonpoint sources,"[8] although in different ways. All point sources must apply some sort of effluent limitation.[9] Such effluent limitations can be technologically-based effluent limitations ("TBELs")—where they exist,[10] or other more stringent limitations—including water quality based effluent limitations ("WQBELs") and other "alternative effluent control strategies"[11]—where necessary to meet water quality standards.[12]

In addition to technology-based permits, t~~T~~he CWA also requires States to develop water quality standards that establish, and then protect, the desired conditions of each water body.[13] State water quality standards consist of "designated uses"[14] for a waterbody, and establish water quality criteria designed to protect those uses.[15] State water quality standards must also be sufficient to maintain existing beneficial uses (i.e. prevent degradation).[16] Nonpoint sources regulations are typically ~~addressed~~ developed in the context of water quality standard implementation.~~by best management practices ("BMPs"),~~[17] ~~which vary by state and level of enforcement.~~ Attainment of water quality standards typically occurs on a watershed-wide basis, although point sources must also meet specific "near-field" discharge regulations.[18] In addition

[6] 33 U.S.C. § 1311(a).
[7] 33 U.S.C. § 1362(14) (A point source is "any discernible, confined and discrete conveyance… from which pollutants are or may be discharged" into a waterbody, including releases from pipes or ditches).
[8] Nonpoint sources are diffuse sources of water pollution, such as stormwater and nutrient runoff from agricultural or forest lands. *See* 40 C.F.R. § 35.1605-4. EPA guidance describes a "nonpoint source" as non-localized runoff "caused by rainfall or snowmelt moving over and through the ground and carrying natural and human-made pollutants into lakes, rivers, streams, wetlands, estuaries, other coastal waters, and ground water." EPA, Nonpoint Source Program and Grants Guidelines for States and Territories, 68 Fed. Reg. 60,653, 60,654 (Oct. 23, 2003).
[9] 33 U.S.C. § 1311(e).
[10] 33 U.S.C. § 1311(b)(1)(A)-(B). Permits must include TBELs, when applicable. 40 C.F.R. § 122.44(a).
[11] 33 U.S.C. § 1312(a). "Alternative effluent control strategies" is not defined in the statute or regulations. Such strategies could include BMPs, other non-numeric limitations, or water quality trading.
[12] 33 U.S.C. § 1311(b)(1)(A)-(B) ("In order to carry out the objective of this chapter[,] there shall be achieved— … effluent limitations for point sources, other than publicly owned treatment works, (i) which shall require the application of the best practicable control technology currently available … *or*, … *any more stringent limitation*, including those necessary to meet water quality standards…") (emphasis added).
[13] *Id.* § 1313(a).
[14] Designated uses in a waterbody include, but are not limited to, public water supply, fish and wildlife protection and propagation, recreation, agriculture, industry, and navigation. *See id.* § 1313(c)(2)(A); 40 C.F.R. § 131.10(a).
[15] 33 U.S.C. § 1313(c)(2)(A). Water quality standards can be either numeric (a quantitative discharge limit) or narrative (prohibiting discharges in harmful amounts). 40 C.F.R. § 131.3(b).
[16] 33 U.S.C. § 1313(d)(4)(B); 40 C.F.R. § 131.12.
[17] Implementation typically occurs through best management practices ("BMPs"). *See* 40 C.F.R. § 130.2(m) (defining BMPs as the "[m]ethods, measures or practices selected by an agency to meet its nonpoint source control needs. BMPs include but are not limited to structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during and after pollution-producing activities to reduce or eliminate the introduction of pollutants into receiving waters."). BMPs vary by state and level of enforcement
[18] Water quality standards set goals for an overall waterbody. 40 C.F.R. § 131.2 ("A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses."); *see* 40 C.F.R. § 131.3(h) (defining water quality non-attainment in terms of "water quality limited segments"). It is not necessary to meet water quality standards at the point of discharge because states retain the authority to establish mixing zones. 40 C.F.R. § 131.13. Although water quality standards are meant to attain designated uses in a waterbody as a whole, individual point sources must satisfy pollutant-specific "near-field" mixing zone regulations created by states. *See, e.g.*, Id. Admin. C. 58.01.02.060; Or.

to establishing water quality goals for a waterbody, water quality standards also serve as the basis for establishing effluent limitations in NPDES permits.[19]

II. Water Quality Trading under TMDLs

When a waterbody fails to meet water quality standards, despite controls on point sources and BMPs applicable to nonpoint sources, states develop TMDLs for impaired waters. TMDLs, as implemented through NPDES permits, can include water quality trading.

A. TMDL Development

When technological controls (set as TBELs in permits) do not bring a particular water body into attainment with applicable water quality standards, a state must identify and rank these unhealthy waters.[20] Unhealthy waters are known as "water quality limited segments," and are listed on "303(d) lists" for each state.[21] For these 303(d) "impaired waters," the states must establish the absolute amount of a particular pollutant—the total maximum daily load—that a waterbody can take on while still satisfying water quality standards.[22] EPA reviews and approves TMDLs developed by the states, or, alternatively, may also prepare a TMDL for a waterbody.[23]

The CWA employs different approaches to control point and nonpoint sources to achieve water quality, but when a water body is impaired, TMDLs tie together point and non-point source pollution issues to address the health of the whole waterbody.[24] Because the focus of a TMDL is on the health of the overall waterbody, TMDLs establish an aggregate pollutant "load"[25] amount for the impaired waterbody equal to "[t]he greatest amount of loading that a water can receive without violating water quality standards."[26]

The loading capacity is then allocated between multiple point and nonpoint sources in the impaired waterbody or waterbody segment, and natural background. If each source discharges at or below its TMDL allocation, the water body should achieve its water quality standards. Point sources receive a wasteload allocation ("WLA") that represents "[t]he portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of

Admin R. 340-041-0053; Wash. Admin. C. 173-201A-400. In the temperature context, even if an overall river is satisfies a "fishable" designated use, an individual point source cannot discharge heat at levels that would cause fish lethality, impair spawning, or create thermal shock or a migration barrier at a particular outfall point. *See, e.g.*, Or. Admin. R. 340-041-0053(2)(d); *see also* Id. Admin. C. 58.01.02.060.01(b); Wash. Admin. C. 173-201A-400(4).

[19] 40 C.F.R. § 131.2.

[20] 33 U.S.C. § 1313(d)(1)(A), (C).

[21] 40 C.F.R. § 130.7(b).

[22] 33 U.S.C. § 1313(d)(1)(C).

[23] 33 U.S.C. § 1313(d)(2).

[24] *See* 33 U.S.C. § 1313.

[25] Load is "an *amount of matter or thermal energy* that is introduced into a receiving water." 40 C.F.R. § 130.2(e) (emphasis added).

[26] 40 C.F.R. § 130.2(f).

pollution[.]"[27] Nonpoint sources receive a load allocation ("LA") that represents "[t]he portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources[.]"[28] The TMDL must also account for seasonal variations and include a "margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality."[29] Along with the statutorily-mandated margin of safety, the TMDL is "[t]he sum of the individual WLAs for point sources and LAs for nonpoint sources and natural background."[30] The components of a TMDL are illustrated by this equation:

$$TMDL = \Sigma\,(WLAs\ [Point] + LAs\ [Nonpoint]) + Margin\ of\ Safety + Natural\ Background$$

The left side of the equation is the total loading capacity of the waterbody for a particular pollutant. The allocations on the right side of the equation represent the loading components, which when summed, equal the TMDL. ~~These allocations are not made to achieve water quality standards at the source; rather, when taken as a whole these allocations are meant to meet the TMDL limit (which is designed to achieve water quality standards in a watershed).~~ Recognizing that the water quality drivers in each waterbody are unique, the CWA allows regulators to make tradeoffs in how to meet the left side of the equation within a TMDL basin: so long as LAs to nonpoint sources are "practicable," such as where supported by BMPs and other reasonable assurances, more load can be allocated to point sources.[31] ~~As an outgrowth of this discretion, trading allows point sources with high WLA compliance costs the ability to more cost-effectively meet their waste load allocations through the purchase of pollution control credits and/or offsets, while still ensuring that the left side of the equation is not exceeded.~~ Once set, however, t~~T~~rading does not, however, change TMDL allocations; rather it simply provides sources with the ability to more cost-effectively meet their load limits through the purchase of pollution control credits and/or offsets.

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B. NPDES Permits Can Incorporate WQT in TMDL Environment

All point sources are required to have an individual or general NPDES permit.[32] ~~Once~~ If there is a TMDL ~~is approved~~for a watershed, ~~all future~~NPDES permits ~~issued to point sources~~ must be consistent with the TMDL's wasteload allocations for point sources.[33] The states—or

[27] 40 C.F.R. § 130.2(h).
[28] 40 C.F.R. § 130.2(g).
[29] 33 U.S.C. § 1313(d)(1)(C); *see also* 1313(d)(1)(D).
[30] 40 C.F.R. § 130.2(i).
[31] 40 C.F.R. § 130.2(i) states in pertinent part: "If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs."
[32] 33 U.S.C. § 1311(a); 40 C.F.R. § 122.28 (general permits).
[33] 40 C.F.R. § 130.2.

EPA where a state has not been ~~delegated~~ authori~~t~~izedy~~authority~~ to issue permits[34]—will issue a NPDES permit to all point sources within the geographic scope of the TMDL. NPDES permits limit the amount of pollutants that can be discharged by a point source into a waterbody.[35] To determine this load limit, regulators establish effluent limits, which cannot "cause, have the reasonable potential to cause, or contribute" to violations of water quality standards or criteria.[36] To meet these limits, NPDES permits include controls that reflect the stricter of two different kinds of effluent limitations: those based on the technology available to treat a pollutant, [37] and those necessary to protect the designated uses of the receiving water body.[38] TBELs "represent the minimum level of control that must be imposed in a permit,"[39] and are "developed independently of the potential impact of a discharge on the receiving water."[40] Unless a specific regulatory exception applies, trading cannot be used to comply with an existing TBEL.[41] But where a point source's TBEL is insufficient to meet the water quality standards that apply in a waterbody, or where no TBEL exists for a particular pollutant from a particular type of source,[42] the permit will instead include more stringent WQBELs—including "alternative effluent control strategies" such as BMPs and other non-numeric limitations—to ensure that water quality standards are met.[43]

Where WQBELs are included in NPDES permits, these limits must be "consistent" with WLAs for point sources.[44] Therefore, trading does not change TMDL allocations because these allocations are the basis of the trade and must remain the same for trading to work. While the

[34] The CWA authorizes states to adopt programs issuing NPDES permits. 33 U.S.C. § 1342(b). ~~Five~~ The following dostates have not ~~been~~ have ~~delegated~~ authority to issue federal Clean Water Act permits: ~~Alaska,~~ Idaho, Massachusetts, New Hampshire, ~~and~~ New Mexico, and District of Columbia.~~,~~ EPA, Clean Water Act Action Plan: Shaping EPA's Future Direction on Water Enforcement, http://www.epa.gov/oecaerth/civil/cwa/cwaenfplan.html. States may enforce more stringent effluent limitations than required by the federal CWA. 33 U.S.C. § 1370.

[35] 33 U.S.C. §§ 1311(a); 1342.

[36] 40 C.F.R. § 122.44(d)(1).

[37] *See* 33 U.S.C. §§ 1311(b)(1)(A)-(B).

[38] *See* 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

[39] 40 C.F.R. § 125.3(a)

[40] EPA, NPDES Permit Writers' Manual at 5-1 (2010).

[41] "EPA does not support trading to comply with existing [TBELs] except as expressly authorized by federal regulations. Existing technology-based effluent guidelines for the iron and steel industry allow intraplant trading of conventional, nonconventional and toxic pollutants between outfalls under certain circumstances (40 C.F.R. § 420.03)." Trading Policy, 68 Fed. Reg. at 1610-11.

[42] Technology-based requirements exist for all sources. TBELs are derived by using national effluent limitation guidelines by industry. Industry-specific technology-based effluent guidelines have been promulgated for over fifty different industrial categories. *See* 40 C.F.R. pts. 405 - 499. ~~Where TBELs have not yet been promulgated,~~ EPA can also rely on ad hoc best professional judgment to set TBELs. *See* 33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(a)(2). While TBELs exist for all sources, they do not exist for all pollutants from all sources. In the case of publicly owned treatment works (POTWs), TBELs are secondary treatment standards as defined in CWA section 1314(d)(1). 33 U.S.C. § 1311(b)(1)(B). POTW facilities have TBELs for five-day biochemical oxygen demand (BOD), total suspended solids (TSS), and pH. 40 C.F.R. § 133.02. POTWs do not have secondary treatment TBELs for temperature or nutrient discharges. *See id.* In late 2012, EPA rejected a rulemaking petition to include nitrogen and phosphorous removal standards within the national secondary treatment standards for POTWs. Letter from Michael Shapiro, EPA Deputy Asst. Administrator, to Ann Alexander, NRDC (Dec. 12, 2012), *available at* http://www.epa.gov/npdes/pubs/ow_shapiro_nrdcpetition.pdf.

[43] *See* 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

[44] 40 C.F.R. § 122.44(d)(1)(vii)(B).

law prescribes minimum requirements for developing WQBELs, it does not dictate how permittees meet them. This was intended to give the permitting authority the flexibility to determine the appropriate procedures for developing WQBELs, and permittees the flexibility in meeting them through vehicles such as water quality trading. ~~Thus, just as the CWA grants EPA the ability **to authorize point source permittees to meet WLAs through TBELs that allow for trading credits or offsets generated from another point source**,[45] the CWA also affords EPA the flexibility to derive WQBELs that allow for trading so long as the WQBEL is consistent with the WLA established under the TMDL.[46]~~

This is consistent with the fact the permit issuer—EPA or states with CWA authority—has broad statutory discretion to choose the proper effluent limitations in a permit,[47] as well as the discretion to condition permits on any "requirements as [s/]he deems appropriate,"[48] including trading-related provisions such as compliance schedules,[49] and re-opener clauses.[50] Moreover, permit writers cannot issue a permit if s/he determines that the imposition of conditions cannot ensure compliance with applicable state water quality standards,[51] and applicable requirements of the CWA and its implementing regulations.[52] Thus, trading can be incorporated into NPDES permits so long as it will not result in a violation of water quality standards, or other provisions of the CWA and its implementing regulations.[53]

As a result of this discretionary flexibility to set effluent limitations in NPDES permits, EPA details three paths to meet permit WQBELs in its Trading Policy, but leaves it up to the

~~[45] One long-standing example of successful point-to-point source trades occurs under the watershed permit held by Clean Water Services, which operates four different municipal wastewater treatment facilities that discharge to Oregon's Tualatin River under the same permit. Under the permit issued in 2005, Clean Water Services has traded oxygen-demanding parameters (CBOD and ammonia) between two of these facilities, affording operators greater flexibility in plant operations to meet water quality objectives at lower cost. Clean Water Services, Briefing Paper: Water Quality Trading (Aug. 2011). Clean Water Services' watershed permit is available at Oregon DEQ's website: http://www.deq.state.or.us/wq/wqpermit/cwspermit.htm.~~

~~[46] *See* 40 C.F.R. § 122.44(d)(1)(vii)(B).~~

[47] *See* 33 U.S.C. § 1342(a)(1) (permits can be issued if a discharge will meet all applicable technological requirements, *or* if based on "such conditions as the Administrator determines are necessary to carry out the provisions of [the CWA].").

[48] *Id.* § 1342(a)(2); 40 C.F.R. 122.43(a) ("In addition to conditions required in all permits (§§ 122.41 and 122.42), the Director shall establish conditions, as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of CWA and regulations.").

[49] Compliance schedules can be included in NPDES permits, where appropriate. 40 C.F.R. § 122.47(a). Where a schedule of compliance exceeds one year, the permit must include interim requirements and dates for their achievement. *Id.* § 122.47(a)(3). In the case of water quality trading, such interim achievements might include minimum credit/year purchase milestones, minimum project/year implementation milestones, and requirements as to when the regulated entity must secure a trading partner.

[50] Reopener clauses can be included in NPDES permits, where necessary to achieve water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(vi)(C)(4).

[51] 40 C.F.R. § 122.4(d).

[52] 40 C.F.R. § 122.4(a).

[53] *See id.* at 1611 ("EPA does not support any use of credits or trading activity that would cause an impairment of existing or designated uses, adversely affect water quality at an intake for drinking water supply or that would exceed a cap established under a TMDL."); 40 C.F.R. § 122.4(a) ("No permit may be issued … [w]hen the conditions of the permit do not provide for compliance with the applicable requirements of CWA, or regulations promulgated under CWA."); 40 C.F.R. § 122.4(d) ("No permit may be issued … [w]hen the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected States.").

permittee to select the path. As EPA provided, "[o]ne option is to implement pollution prevention, reuse, or recycling measures adequate to meet the WQBEL at the point of discharge. The second option is to install treatment technology. The third option is trading[.]"[54] A facility could also implement treatment/pollution reduction measures to address a portion of its reduction requirement, and purchase its remaining reductions via water quality trading.[55] In the context of trading under TMDLs, EPA does require that water quality trades used to meet a point source's WQBEL "should be consistent with the assumptions and requirements upon which the TMDL is established," and that trades cannot delay implementation of a TMDL nor cause the combined point and nonpoint source loading to exceed the TMDL.[56] Therefore, under EPA's Trading Policy, once a nonpoint or point source has met baseline requirements—which are discussed at length in Tier II of the JRA—it can provide a ~~compliance~~ "credit" to a point source within the same watershed ~~with a TMDL-imposed WLA (translated into an enforceable permit WQBEL) when it undertakes a project to reduce its load below its respective LA~~to help the point source meet its WQBEL.[57]

III. Requirements Applicable to TMDL-based NPDES Permits that Include WQT

In addition to meeting WQBELs, point sources that rely on trading in areas covered by a TMDL must also comply with anti-degradation, anti-backsliding, and other substantive and procedural permit issuance conditions in order to participate in water quality trading.

A. Anti-Degradation Policy Compliance

Water quality trades and trading programs must comply with anti-degradation policies. In water-quality limited waters (Tier 1), states must maintain and protect existing designated uses.[58] EPA endorses trading so long as existing uses are maintained and protected.[59] In high quality waters where water quality exceeds levels necessary to sustain propagation of fish, shellfish, and wildlife and recreation in and on the water (Tier 2), water quality cannot be degraded ~~states cannot further degrade water quality~~ unless ~~i~~EPA~~i~~t is determined necessary ~~EPA finds it necessary~~ to accommodate important economic or social development in the area.[60] ~~EPA asserts that~~ Unless justified, water quality trading may~~will~~ not result in "lower water quality" for Tier 2 high quality waters.[61] In state-designated "outstanding natural resources waters" (Tier 3),

[54] EPA, Water Quality Trading Toolkit for Permit Writers, 20 (2009), http://www.epa.gov/npdes/pubs/wqtradingtoolkit_fundamentals.pdf.
[55] Water Quality Trading Toolkit, at 20.
[56] Trading Policy, 68 Fed. Reg. at 1610.
[57] *Id.*
[58] 40 C.F.R. § 131.12(a)(1).
[59] Trading Policy, 68 Fed. Reg. at 1611.
[60] 40 C.F.R. § 131.12(a)(2).
[61] Trading Policy, 68 Fed. Reg. at 1611 (interpreting language in 40 C.F.R. § 131.12(a)(2)).

water quality must be maintained and protected without exception.[62] Additional limitations apply where potential water quality impairment is associated with thermal discharges.[63] EPA does not believe that anti-degradation review should be triggered under its regulations when trades or the trading program overall achieves a "no net increase" of the pollutant traded, and designated uses are not impaired.[64] Therefore, the scope of anti-degradation requirements and review will vary depending on the type/quality of the water into which a discharge will occur.[65]

B. Compliance with "Cause or Contribute" Provisions in 40 C.F.R. § 122

Sources must also address the "cause or contribute" provisions in the federal regulations prior to engaging in trading. ~~The level of anti-degradation review will also vary depending on whether the discharge is from a new source or discharge point, and whether the discharge will occur in a waterbody covered by a TMDL. N~~In areas covered by TMDLs, ~~n~~new sources or new dischargers cannot be issued a permit if the discharge from construction or operation will "cause or contribute" to a violation of water quality standards.[66]~~,~~ The one regulatory exception is triggered when there is a TMDL (or something analogous that develops allocations), and the discharger demonstrates (prior to the close of the public comment period for the permit) ~~unless, before the close of the public comment period on the permit, the discharger demonstrates~~ that 1) there is sufficient remaining pollutant load to allocate to it, and 2) that existing dischargers in that waterbody segment are subject to compliance schedules meant to bring the segment into compliance with water quality standards (not necessarily before the new discharger begins discharging).[67] Each NPDES permit (new and existing) must set limits sufficient to control all pollutants that are or may be discharged at levels that would "cause, have the reasonable

[62] 40 C.F.R. § 131.12(a)(3).

[63] 40 C.F.R. § 131.12(a)(4) (where potential water quality impairment is associated with a thermal discharge, the anti-degradation policy and implementing method must be consistent with 33 U.S.C. § 1326). Section 1326(a) allows for adjustment of effluent limitations associated with thermal discharges where a point source can demonstrate, after public hearing, that a less stringent limitation will still assure protection of fish and wildlife.

[64] Trading Policy, 68 Fed. Reg. at 1611. EPA's position is consistent with the purposes underlying water quality standards (including anti-degradation, which is in subpart 131.2, titled "water quality standards"). *See* 40 C.F.R. § 131.2 (t~~h~~e purpose of water quality standards is to "protect public health or welfare, enhance the quality of water and serve the purposes of the [CWA]."). It is also consistent with EPA regulations describing the safeguards necessary when water quality degradation is allowed. *See* 40 C.F.R. § 131.12(a)(2) ("In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.").

[65] 40 C.F.R. § 131.12(a); *see* 33 U.S.C. § 1313(d)(4)(B).

[66] 40 C.F.R. § 122.4(i).

[67] 40 C.F.R. § 122.4(i)(1)-(2). A "schedule of compliance" is a "schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition or standard." 33 U.S.C. § 1362(17). Schedules of compliance that last beyond one year must set interim requirements on at least an annual basis, or if impracticable to divide into increments, interim progress reports. 40 C.F.R. § 122.47(3). Compliance schedules can be modified after floods, acts of God, or other events that the permittee has little control over. 40 C.F.R. § 122.62(a)(4). Compliance schedules are not limited to the life of the permit, but require compliance "as soon as possible." 40 C.F.R. § 122.47(a)(1).

potential to cause, or contribute" to violations of water quality standards.[68] None of t~~T~~hese regulations ~~do not~~ define "cause or contribute." Therefore, not every ~~new~~ discharge ~~to an impaired water~~ necessarily "causes or contributes" to a violation of water quality standards. For example, assuming a point source complies with its near-field regulations, a discharge may not "cause or contribute" to a violation of standards~~, especially~~ if it is *de minimis*, if the point source is discharging to water quality criteria at end-of-pipe but the water quality in the receiving waterbody is already too polluted, or where a point source is discharging, but participation in a water quality trading program moves the waterbody closer to ~~net improvements to a waterbody~~attainment of water quality standards ~~occur as a result of a water quality trading program (assuming compliance with near-field regulations)~~.

~~For existing dischargers, permit renewals at the same or lower effluent limitations do not usually "cause or contribute" to violations of water quality standards. Moreover, when establishing permit limits, effluent limits set by the permit writer cannot "cause, have the reasonable potential to cause, or contribute" to violations of water quality standards or criteria.[69] As further protection, a permit writer cannot issue a permit if the imposition of conditions cannot ensure compliance with applicable state water quality standards,[70] and applicable requirements of the CWA and its implementing regulations.[71] These provisions ensure that water quality trades do not violate state anti-degradation policies~~.

C~~B~~. Anti-Backsliding Compliance

Point sources wishing to participate in water quality trading must comply with the "anti-backsliding" provisions of the CWA. Under these provisions, NPDES permits generally may not be renewed, reissued, or modified to contain less stringent effluent limitations than those found in the previous permit.[72] This means that once an entity has achieved a particular effluent limitation—technological or water quality based—future permit iterations cannot be renewed, reissued or modified to contain less stringent limits, unless a ~~n~~ exception applies.[73] In addition, if a point source in an impaired water has an effluent limitation based on a TMDL/WLA, the effluent limit can only be revised if the cumulative effect of all effluent limitation revisions will

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[68] 40 C.F.R. § 122.44(d)(1).
[69] 40 C.F.R. § 122.44(d)(1).
[70] 40 C.F.R. § 122.4(d).
[71] 40 C.F.R. § 122.4(a).
[72] 33 U.S.C. § 1342(o)(1); 40 C.F.R. § 122.44(l).
[73] 33 U.S.C. § 1342(o)(2). The relevant exceptions are 1) material and substantial alterations occurred after permit issuance and a less stringent limitation is appropriate; 2) new information arose that was not available at the time of the permit, or there was a mistake in the permit, and this different information would have justified less stringent limitations; 3) occurrence of an un-remediable event outside the permittee's control; 4) the permittee received a permit modification; and 5) the permittee installed the controls necessary to meet effluent limitations, and properly operated/maintained the facility, but was unable to achieve the pervious effluent limitation, thus making the new effluent limitation the level of pollutant control actually achieved. *Id.* § 1342(o)(2)(A)-(E); 40 C.F.R. § 122.44(l).

ensure water quality standard attainment, *or* the unattained designated use has been removed.[74] Additional hurdles exist if attempting to revise a point source's effluent limit, where the point source is located in waters that exceed levels necessary to meet designated uses.[75] If a facility meets its alternate WQBEL through the purchase of ~~trading~~ credits, and the facility ~~is~~ remains responsible for the same level of pollutant reduction, EPA believes that trading does not constitute a less stringent effluent limitation, even if the facility itself has a larger actual discharge.[76] ~~Similarly, effluent limitations, wasteload allocations, and/or water quality standards cannot be revised to be less stringent.[77] [78]~~ Allowing a facility to meet its WQBEL via trading does not constitute a revised effluent limitation if the facility is still responsible for the same level of pollution reduction.[79] Thus, once restoration actions required by a WQBEL or other appropriate trading conditions (such as trading ratios) are successfully installed—and thus attained by the point source—subsequent permits cannot be renewed, reissued, modified, or revised to contain less stringent trading limits, unless an exception applies.

D. Additional Procedural Safeguards: Oversight & Public Involvement

Lastly, the ability to use water quality trading as a NPDES permit compliance alternative in a region covered by a TMDL is limited by two other important procedural safeguards. First, for all permit decisions, including those that ~~authorize~~ allow for trades, EPA retains an oversight role.[80] Therefore, EPA has authority to review trading provisions included in these permits to determine whether a permit is outside the guidelines and requirements of the CWA. To the extent EPA foresees the need to restrict trades, it may do so. Second, the public has the right to notice and comment on TMDLs that authorize water quality trading,[81] and to permits that authorize trades to meet WQBELs.[82] Therefore, this is robust opportunity for public input in developing appropriate water quality trading programs.

IV. Trading ~~in the Absence~~Outside of TMDLs

[74] 33 U.S.C. § 1313(d)(4)(A). The 2003 EPA Trading Policy cites to this provision explicitly in the anti-backsliding section. 68 Fed. Reg. at 1611.
[75] *Id.* § 1313(d)(4)(B).
[76] *See* Water Quality Trading Toolkit, at 21.
[77] ~~33 U.S.C. § 1313(d)(4). In impaired waterbodies, wasteload allocations and effluent limitations cannot be revised unless attainment of the water quality is assured, or the designated use is removed. *Id.* § 1313(d)(4)(A). In high quality waterbodies, wasteload allocations, effluent limitations, and water quality standards cannot be revised unless the revision is consistent with anti-degradation policies. *Id.* § 1313(d)(4)(B).~~
[78] ~~33 U.S.C. § 1313(d)(4). In impaired waterbodies, wasteload allocations and effluent limitations cannot be revised unless attainment of the water quality is assured, or the designated use is removed. *Id.* § 1313(d)(4)(A). In high quality waterbodies, wasteload allocations, effluent limitations, and water quality standards cannot be revised unless the revision is consistent with anti-degradation policies. *Id.* § 1313(d)(4)(B).~~
[79] *See* Water Quality Trading Toolkit, at 21; Trading Policy, 68 Fed. Reg. at 1611.
[80] 33 U.S.C. § 1342(d); *see also* 68 Fed. Reg. at 1613.
[81] *See* 40 C.F.R. § 130.7(d)(2) (EPA must publish a notice seeking public comment on the TMDL); 40 C.F.R. § 130.7(c)(1)(ii) (calculations used to establish a TMDL must be subject to public review as defined in a state's Continuing Planning Process).
[82] 40 C.F.R. § 124.10; Trading Policy, 68 Fed. Reg. at 1611.

~~Pre~~Outside-of-TMDL trades with NPDES permits would be structured similarly to trades under TMDLs, although with some differences. EPA endorses three types of pre-TMDL trades in its Trading Policy. First, EPA endorses watershed-scale trading programs that reduce loadings to a specified cap, supported by baseline information on pollutant sources and loadings.[83] Second, EPA endorses individual pre-TMDL trades that result in a net reduction of the pollutant traded, thus ensuring that further impairment is avoided.[84] Third, EPA endorses pre-TMDL trading that achieves a direct environmental benefit relevant to the conditions or causes of impairment to achieve progress toward restoring designated uses where reducing pollutant loads alone is not sufficient or as cost-effective.[85] Pre-TMDL trades might ameliorate or eliminate the need for a TMDL in the watershed.[86] If pre-TMDL trading does not, however, result in attainment of applicable water quality standards, EPA expects a TMDL to be developed.[87]

With respect to the first type of pre-TMDL trade—watershed wide trading that reduces loadings to a specified cap based on baseline information—the process is not significantly different than under TMDLs. Caps for total loading are derived from baseline information on pollutant sources and loadings that is consistent with water quality standards.[88] Establishing baseline information requires quantification of current conditions (including current pollutant loads from point and nonpoint sources in the watershed, and background levels).[89] Therefore, similar information must be gathered and quantified in order to approve a watershed-wide ~~pre-TMDL~~ trading program without a TMDL. To ensure the credibility of credits created and generated in this type of ~~e pre-TMDL~~ environment, baseline measurement and quantification should be consistent with the methodologies that would be utilized in that particular TMDL process. Such examples include the Minnesota Pollution Control Agency pre-TMDL phosphorous trading program,[90] the Great Miami River Watershed trading program,[91] and the Neuse River, where a TMDL later incorporated a pre-TMDL cap.[92]

[83] Trading Policy, 68 Fed. Reg. at 1610.
[84] Trading Policy, 68 Fed. Reg. at 1610.
[85] Trading Policy, 68 Fed. Reg. at 1610.
[86] Water Quality Trading Toolkit, at 21.
[87] Trading Policy, 68 Fed. Reg. at 1610.
[88] Water Quality Trading Toolkit, at 21.
[89] Water Quality Trading Toolkit, at 21.
[90] Pre-TMDL phosphorous trading (PTPT) allows new and expanding wastewater treatment facilities that discharge to a nutrient-impaired water to receive a discharge permit prior to completion of the applicable TMDL. Through PTPT, a new or expanding facility may increase its phosphorus discharge by purchasing a phosphorus reduction at another permitted facility (only facilities with effluent phosphorous limits in their permits can sell credits). Trades must be upstream of the impaired water; trades can be between entities within the same major watershed (trade ratio of trade ratio of 1.2 to 1 for new facilities and 1.1 to 1 for expanding facilities); 2) between buyers and sellers in different major watersheds, but within the same basin, and the seller is closer to the impaired water than the buyer (trade ratio of 1.2 to 1 for new facilities and 1.1 to 1 for expanding facilities); or 3) between buyers and sellers in different major watersheds, but within the same basin, and the buyer is closer to the impaired water than the seller (trade ratio of 1.4 to 1). PTPT cannot exacerbate violations of water quality standards. The buyer's phosphorus mass limit will be adjusted upwards and the seller's phosphorus mass limit will be adjusted downwards in proportion to the extent of the trade. The trade is not effective until the permits have been changed. Once the period of the trade ends, each facility's phosphorus permit limit reverts to its original value. Minn. Pollution Control

The permit issuer would issue NPDES permits allowing for trading to point sources that are largely the same, although without a TMDL, permits need not be consistent with TMDL wasteload allocations.[93] In both pre-TMDL and TMDL contexts, NPDES permits limit the amount of pollutants that can be discharged by a point source into a waterbody.[94] In both contexts, unless a specific regulatory exception applies, trading cannot be used to comply with an existing TBEL.[95] Like in the TMDL context, where a point source's TBEL is insufficient to meet the water quality standards that apply in a waterbody, or where no TBEL exists for a particular pollutant from a particular type of source,[96] the permit will instead include more stringent WQBELs—including "alternative effluent control strategies" such as BMPs and other non-numeric limitations—to ensure that water quality standards are met.[97] As in the TMDL context, EPA believes that permittees can meet WQBELs in the pre-TMDL context by "implement[ing] pollution prevention, reuse, or recycling measures adequate to meet the WQBEL at the point of discharge[, or by] install[ing] treatment technology[, or by] trading[.]"[98]

In pre-TMDL trading environments, both regulators and permittees will likely desire the inclusion of compliance schedules,[99] and re-opener clauses.[100] Moreover, in pre-TMDL trading

Agency, Pre-TMDL Phosphorous Trading Permitting Strategy, http://www.pca.state.mn.us/index.php/water/water-types-and-programs/minnesotas-impaired-waters-and-tmdls/tmdl-projects/special-projects/pre-tmdl-phosphorus-trading.html. The Minnesota Supreme Court upheld the MPCA's interpretation of the CWA, and upheld a WWTP permit that allowed for pre-TMDL phosphorous trading. *In the Matter of the Cities of Annandale and Maple Lakes NPDES/SDS Permit Issuance*, 731 N.W.2d 502 (Minn. 2007).

[91] Soil and water conservation districts work with local farmers who agree to change their practices. Together, they submit projects that reduce nitrogen and phosphorous run-off. An advisory committee (WWTPs, agricultural producers, Ohio Farm Bureau Ass'n, Ohio Water Envtl. Ass'n, community watershed organizations, county SWCDs, ODNR and USDA) review the proposals. The Waste Conservation Subdistrict manages an Insurance Pool of credits to be used as a "guarantee" for credits being generated for eligible buyers. Credits are used by WWTPs to meet their NPDES permit requirements. Those who participate in advance of regulatory requirements must produce credits at 1:1 ratio (for discharges to fully attaining waters) and at a 2:1 ratio (into impaired waters). Permittees who participate after the imposition of regulatory requirements must contribute at 2:1 and 3:1, respectively. SWCDs do the project implementation. Miami Conservancy District, Great Miami River Watershed Water Quality Credit Trading Program, http://www.miamiconservancy.org/water/quality_credit.asp.

[92] In 1999, North Carolina completed a TMDL for the Neuse River. The Neuse River Compliance Association established a pre-TMDL cap for the watershed in 1997. Water Quality Trading Toolkit, at 21, n. 7.

[93] *See* 40 C.F.R. § 130.2.

[94] 33 U.S.C. §§ 1311(a); 1342.

[95] "EPA does not support trading to comply with existing [TBELs] except as expressly authorized by federal regulations. Existing technology-based effluent guidelines for the iron and steel industry allow intraplant trading of conventional, nonconventional and toxic pollutants between outfalls under certain circumstances (40 C.F.R. § 420.03)." Trading Policy, 68 Fed. Reg. at 1610-11.

[96] *See supra* notes 41-42 and accompanying text.

[97] *See* 33 U.S.C. §§ 1311(b)(1)(C); 1312(a).

[98] EPA, Water Quality Trading Toolkit for Permit Writers, 20 (2009), http://www.epa.gov/npdes/pubs/wqtradingtoolkit_fundamentals.pdf.

[99] Compliance schedules can be included in NPDES permits, where appropriate. 40 C.F.R. § 122.47(a). Where a schedule of compliance exceeds one year, the permit must include interim requirements and dates for their achievement. *Id.* § 122.47(a)(3). In the case of water quality trading, such interim achievements might include minimum credit/year purchase milestones, minimum project/year implementation milestones, and requirements as to when the regulated entity must secure a trading partner.

[100] Reopener clauses can be included in NPDES permits, where necessary to achieve water quality standards. *See* 40 C.F.R. § 122.44(d)(1)(vi)(C)(4).

contexts, permittees will likely only participate if the regulators include a provision in the NPDES permit guaranteeing that actions taken in the pre-TMDL environment will count toward compliance obligations imposed by the future TMDL. Permittees will also likely require more favorable trading ratios in order to participate. Inclusion of these trading provisions is within the permitting authority's broad discretion to insert conditions into NPDES permits.[101] Similar to permits issued in a TMDL context, however, pre-TMDL permits can only include trading so long as trading will not result in a violation of water quality standards, or the CWA or its implementing regulations.[102]

Permits issued in a pre-TMDL context need to conform to largely the same anti-degradation, anti-backsliding and procedural requirements as permits issued in a TMDL context. The one notable difference between pre-TMDL and TMDL ~~trading~~ contexts is that ~~for pre-TMDL trades~~a new source may be allowed to discharge into a water quality limited segment if there is an enforceable TMDL that ensures water quality standards will be met, whereas such an option does not appear to exist in the pre-TMDL context. ~~there is no regulatory exception if a new source or discharge will "cause or contribute to the violation of water quality standards."~~[103][104][105] In both TMDL and outside-of-TMDL contexts, however, the regulations do not define "cause or contribute," and so each discharge to an impaired water does not necessarily "cause or contribute" to a violation, especially if it is a *de minimis* discharge, or where net improvements to a waterbody may occur as a result of a water quality trade or trading program. ~~As further protection~~Similarly, in both contexts, a permit writer cannot issue a permit if the imposition of conditions cannot ensure compliance with applicable state water quality standards,[106] and applicable requirements of the CWA and its implementing regulations.[107]

[101] *See* 33 U.S.C. § 1342(a) (permits can be issued based on "such conditions as the Administrator determines are necessary to carry out the provisions of [the CWA]."); 40 C.F.R. 122.43(a) ("In addition to conditions required in all permits (§§ 122.41 and 122.42), the Director shall establish conditions, as required on a case-by-case basis, to provide for and assure compliance with all applicable requirements of CWA and regulations.").

[102] *See id.* at 1611 ("EPA does not support any use of credits or trading activity that would cause an impairment of existing or designated uses, adversely affect water quality at an intake for drinking water supply or that would exceed a cap established under a TMDL."); 40 C.F.R. § 122.4(a), (d) 40 C.F.R. § 122.4(d).

[103] ~~40 C.F.R. § 122.4(i). In TMDL environments, a new source or discharger may cause or contribute to a violation of water quality standards if it demonstrates, prior to the close of public commenting, that 1) there is sufficient remaining pollutant load to allocate to it, and 2) that existing dischargers in that waterbody segment are subject to compliance schedules meant to bring the segment into compliance with water quality standards (not necessarily before the new discharger begins discharging). *Id.* § 122.4(i)(1)-(2).~~

[104] ~~40 C.F.R. § 122.4(i). In TMDL environments, a new source or discharger may cause or contribute to a violation of water quality standards if it demonstrates, prior to the close of public commenting, that 1) there is sufficient remaining pollutant load to allocate to it, and 2) that existing dischargers in that waterbody segment are subject to compliance schedules meant to bring the segment into compliance with water quality standards (not necessarily before the new discharger begins discharging). *Id.* § 122.4(i)(1)-(2).~~

[105] 40 C.F.R. § 122.4(i). In TMDL environments, a new source or discharger may cause or contribute to a violation of water quality standards if it demonstrates, prior to the close of public commenting, that 1) there is sufficient remaining pollutant load to allocate to it, and 2) that existing dischargers in that waterbody segment are subject to compliance schedules meant to bring the segment into compliance with water quality standards (not necessarily before the new discharger begins discharging). *Id.* § 122.4(i)(1)-(2).

[106] 40 C.F.R. § 122.4(d).

[107] 40 C.F.R. § 122.4(a).

These provisions ensure that water quality trades ~~do not violate state anti-degradation policies~~are protective even without a TMDL.

Water quality trading is thus legal on the face of the CWA, and bracketed by sufficient safeguards to ensure compliance with water quality standards. However, water quality trading must be legally applied as well. Thus, Tier 2 of this Agreement provides the necessary safeguards to determine trade eligibility, verification, tracking, and monitoring so as to comply with and attain water quality standards.